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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/007,585

12/05/2001

Timothy R. Spooner

Analog 5721-5

3538

7590

09/07/2004

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EXAMINER

HOGANS, DAVID L

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/007,585	Applicant(s) SPOONER ET AL.	
	Examiner David L. Hogans	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 24-29 and 33-45 is/are pending in the application.
 4a) Of the above claim(s) 1-11, 24, 25 and 33-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the Request for Continued Examination filed on August 18, 2004.

Status of Claims

Claims 26-29 are pending. Claims 12-23, 30-32 and 46-60 are cancelled. Claims 1-11, 24, 25 and 33-45 are withdrawn. Claim 26 is generic.

Double Patenting

The provisional Double Patenting rejection of Claims 26-29 via copending Application No. 10/006,966 in view of 6,245,593 to Yoshihara et al. has been withdrawn pursuant to Applicant's Amendments submitted on August 18, 2004.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over 6,245,593 to Yoshihara et al. in view of 6,429,506 to Fujii et al.

Claim 26

Yoshihara et al. teaches mounting, upon a backside of the MEMS wafer (1), a layer of dicing tape (7), the MEMS wafer having a plurality of MEMS structure sites (100 or 3) on a front side (1a) and a plurality of through holes (1c), each through hole

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corresponding to a MEMS structure site (100 or 3), the through holes being formed such that each through hole penetrates through the wafer from the backside of the wafer (1b) to the front side (1a); mounting, upon the front side of the MEMS wafer, prior to dicing, a wafer cap (2) to produce a laminated MEMS wafer; dicing (8) the MEMS wafer (1) into a plurality of dies such that each die includes a MEMS structure site and a corresponding through hole; and mounting, upon the dicing tape (7b), a layer of transfer tape (7a) (See Figures 1-8 and columns 3-7 lines 20-05)

Yoshihara et al. fails to explicitly teach wherein the wafer cap is recessed in areas corresponding to locations of the MEMS structure sites on the MEMS wafer.

However, Fujii et al., in Figures 1-8 and 13-16 and columns 3-12 lines 20-45, teaches wherein a wafer cap (14) is recessed in areas corresponding to locations of the MEMS structure sites (10) on the MEMS wafer.

It would have been obvious to one of ordinary skill in the art to modify Yoshihara et al. by incorporating wherein a wafer cap is recessed in areas corresponding to locations of the MEMS structure sites on the MEMS wafer, as taught by Fujii et al, to prevent semiconductor devices with movable portions from being contaminated with debris when the wafer is being cut by dicing.

Claim 27

Incorporating all arguments of Claim 26 and noting that Yoshihara et al., in Figures 1-8 and columns 3-7 lines 20-05, teaches wherein the layer of dicing tape has a UV releasable adhesive.

Claim 28

Incorporating all arguments of Claim 26 and noting that Yoshihara et al., in Figures 1-8 and columns 3-7 lines 20-05, teaches removing the individual diced dies from the wafer.

3. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over 6,245,593 to Yoshihara et al. in view of 6,429,506 to Fujii et al. further in view of 5,360,873 to Ohkawa et al.

Incorporating all arguments of Claims 26 and 28 and noting that Yoshihara et al. and Fujii et al. fail to explicitly teach wherein individual dies are removed by initially exposing the dicing tape to a UV radiation and disengaging the dies from the dicing tape with a die ejection needle.

However, Ohkawa et al., in column 23 lines 40-52, teaches wherein individual dies are removed by initially exposing the dicing tape to UV radiation and disengaging the dies from the dicing tape with a die ejection needle.

It would have been obvious to one of ordinary skill in the art to modify Yoshihara et al. and Fujii et al. by incorporating individual dies removed by initially exposing the dicing tape to UV radiation and disengaging the dies from the dicing tape with a die ejection needle, as taught by Ohkawa et al., to remove the die for further processing.

Response to Arguments

4. Applicant's arguments with respect to claims 26-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Hogans whose telephone number is (571) 272-1691. The examiner can normally be reached on M-F (7:30-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DH ~~DA~~


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